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NA-931, a novel quadruple IGF-1, GLP-1, GIP and glucagon receptor agonist for the treatment of obesity

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Background: Insulin-like Growth Factor 1 (IGF-1) plays a major part in fuel metabolism and regulation of body composition. GIP and GLP1 and Glucagon have been shown to be effective for weight loss in non-diabetic patients with obesity when given as adjunctive therapy to diet and exercise. IGF-1 has been shown to modulate and provide homeostasis of GLP-1, GIP, glucagon agonists in the treatment of obesity, while preserving muscle strength.NA-931 and its analogs, NA-932 and NA-933 ("NA-931 Compounds") are metabolites of IGF-1. Acting as a receptor agonist targeting IGF-1, GLP-1 and GIP, and Glucagon, NA-931 benefits.

Methods: Male diet-induced obese (DIO) mice were treated with daily subcutaneous injections of vehicle or one of novel quadruple IGF-1/GLP-1/GIP/Glucagon receptor agonists, NA-931, NA-932 and NA-933 (10 nmol/ kg), for 14 days. Tirzepatide (10 nmol/ kg) as used as positive controls.Cohorts were then assessed for changes in lipids.

Results: Treatment with NA-931 Compounds resulted in reductions to BW (up to 26%, $p<0.0001$), plasma glucose, plasma triglycerides, (up to 23% and 34%, respectively, $p<0.003$ for each), and liver triglycerides (up to 46%, $p<0.05$) compared to vehicle treatment. Weight loss effects in cohorts treated with NA-931 Compounds were comparable to those observed in tirzepatide-treated animals. In addition, liver lipid reductions were NA-931Compounds.

Conclusions: NA-931 and its analogs produced significant reductions in BW in DIO mice. Effect sizes were comparable to those observed in the tirzepatide control group. The NA-931 Compounds have been shown to produce desirable changes to lipid profile, suggesting global cardiometabolic benefit, represent a promising therapeutic approach to metabolic disorders such as obesity, type 2 diabetes, and non-alcoholic steatohepatitis. Additional research on these drug candidates is ongoing.

Biography

Lloyd is a scientist with 25-year experience in drug development and clinical trials management. He is an inventor with a number of patents in drug therapeutics in the treatment of neurological and metabolic diseases. Lloyd serves as the chairman and CSO of Biomed Industries, Inc., the parent company of Biomed Pharmaceuticals, NeuroActiva, MedAware Systems, Inc. and BiomedAI, Inc. In his early career, he was employed as a research scientist at G.D. Searle, (a subsidiary of Pfizer), and was the director of R&D at Biomed Pharmaceuticals. Lloyd graduated with a BSc (Honours) and completed a PhD in medicinal chemistry at University of Otago and Wellington University of New Zealand